




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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,042	10/03/2003	Johann Schuster	P03,0377	1644
26574	7590	10/14/2004	EXAMINER	
SCHIFF HARDIN, LLP PATENT DEPARTMENT 6600 SEARS TOWER CHICAGO, IL 60606-6473			FETZNER, TIFFANY A	
			ART UNIT	PAPER NUMBER
			2859	

DATE MAILED: 10/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p style="text-align: center;">Office Action Summary</p>	<p>Application No.</p> <p>10/679,042</p>	<p>Applicant(s)</p> <p>SCHUSTER ET AL.</p>	
	<p>Examiner</p> <p>Tiffany A Fetzner</p>	<p>Art Unit</p> <p>2859</p>	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| <p>1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date <u>02/23/2004</u>.</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6) <input type="checkbox"/> Other: _____</p> |
|---|---|

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 02/23/2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner. The examiner initialed IDS is attached to this office action.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

4. A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

5. Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. **Claims 1-9 are provisionally rejected** under the judicially created doctrine of double patenting over **claims 1-2 and 23-24**, of copending **Schuster** Application No.10/678,808 filed **October 3rd 2004** [See **Schuster** US Patent Application Publication 2004/0113618 A1 published June 17th 2004, and **Schuster** figures 1-3 in combination with the listed claims]. This is a **provisional double patenting rejection** since the conflicting claims have not yet been patented.

7. The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that

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compending application since the referenced compending application and the instant application are claiming common subject matter, as follows:

- A)** Applicant's **claim 1** cavity limitation is met by the first limitation of **Schuster claim 23**.
- B)** Applicant's **claim 1** gradient coil system limitation is met by the second limitation of **Schuster claim 23**, with respect to figures 1-3 of **Schuster**, because the end and middle regions claimed by applicant with two structurally independent gradient units which are separated from one another but attached to the patient carrier which receives the examination subject, with a space between the system; (i.e. claim 23) is an intrinsic gradient system with edge regions on either end of the independent gradient units, and a "middle region" defined by the space between the independent gradient units, which is equivalent to applicant's **claim 1** terminology. The space in the middle region also indicates an intrinsic "reduced mechanical stiffness compared to the edge regions", because the two independent gradient system units provide direct mechanical support to the edges of the gradient coil system, but the space in the middle automatically reduces the mechanical support.
- C)** Applicant's **claim 1** supporting arrangement limitation is met by **Schuster claim 24**.
- D)** Applicant's **claim 2** "carrier" limitation is met by the second limitation of **Schuster claim 23**, limitation 2 which requires a carrier.
- E)** Applicant's **claim 3** multiple sub-coil limitation is met by the second limitation of **Schuster claim 23**, limitation 2 which requires multiple sub-coils as claimed by applicant.
- F)** Applicant's **claim 4** structurally independent gradient coil unit limitation is met by the second limitation of **Schuster claim 23**, limitation 2 which requires at least two structurally independent gradient coil units.
- G)** Applicant's **claim 5** which requires that the two structurally independent gradient coil units be separated in the middle is met by the second limitation of **Schuster claim 23**, limitation 2 which requires a middle separation of the structurally independent gradient coil units. [See also figures 1-3].

- H) Applicant's **claim 6** carrier hollow cylindrical shape limitation is met by **Schuster claim 2**.
- I) Applicant's **claim 7** the gradient units hollow cylindrical shape limitation is met by **Schuster claim 2**.
- J) Applicant's **claim 8** the gradient coil middle region barrel shape limitation is met by **Schuster claim 24**.
- K) Applicant's **claim 9** the cavity middle region barrel shape limitation is met by **Schuster claim 24**.

Claim Objections

8. **Claim 12** is objected to because of the following informalities: A) in line three of **claim 12** delete "element" and insert "elements", because "at least three element circumferentially distributed" is grammatically awkward, and more than one element is being referred to. Appropriate correction is required.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. **Claims 1, 2, 6, 8-12 and 16** are rejected under **35 U.S.C. 102(b)** as being anticipated by **Sellers et al.**, US patent 6,107,799 issued August 22nd 2000.
11. With respect to **Claim 1**, **Sellers et al.**, teaches "A magnetic resonance apparatus comprising: a magnetic resonance scanner having a cavity therein adapted to receive a subject", [See col. 5 lines 16-29, and figures 1-4 where the examination cavity into which a patient to be imaged is placed, is the region below component 14 in

each of applicant's figures through which the central dashed line passes.] **Sellers et al.**, shows that "said cavity having a boundary surface;" [See the lower side of gradient coil assembly 14 in figures 3, 4] "a gradient coil system disposed in said cavity", [See component 14 in figures 3-4] "said gradient coil system having a middle region" [See the space defined between components 12, 16, and 40 of figure 4] "and edge regions respectively disposed on opposite sides of, and adjoining, said middle region", [See wedge components 40 in figure 4] "said middle region having a reduced mechanical stiffness compared to said edge regions;" [See figure 4, col. 2 lines 22-25, col. 4 lines 5-61, col. 6 line 58 through col. 7 line 4] "and a supporting arrangement to support said middle region against said boundary surface of said cavity" [See figure 3 wedge components 42, col. 4 lines 5-61, col. 6 lines 37-57].

12. With respect to **Claim 2, Sellers et al.**, teaches and shows that "said gradient coil system comprises a carrier." [See **Sellers et al.**, col. 5 lines 33-47 where the gradient coil assembly tube component 14 is an intrinsic gradient carrier because component 14 supports or carries the other gradient coil assembly components,] The same reasons for rejection, that apply to **claim 1** also apply to **claim 2** and need not be reiterated.

13. With respect to **Claim 6, Sellers et al.**, teaches and shows that "said carrier has a hollow cylindrical shape." [See Figure 3 col. 5 lines 14-47] The same reasons for rejection, that apply to **claims 1, 2** also apply to **claim 6** and need not be reiterated.

14. With respect to **Claim 8, Sellers et al.**, teaches and shows that "said gradient coil system has a hollow-cylindrical shape." [See **Sellers et al.**, Figure 3 col. 5 lines 14-47] The same reasons for rejection, that apply to **claim 1** also apply to **claim 8** and need not be reiterated.

15. With respect to **Claim 9, Sellers et al.**, shows that "said cavity, in a region thereof corresponding to said middle region of said gradient coils system, has a barrel shape." [See **Sellers et al.**, figure 4 the space defined by components 14, 12, and 40; col. 6 line 58 through col. 7 line 4] The same reasons for rejection, that apply to **claim 1** also apply to **claim 9** and need not be reiterated.

16. With respect to **Claim 10, Sellers et al.**, teaches and shows that "said cavity has cylindrical" (i.e. tubular) "regions respectively on opposite sides of, and adjoining, said region with said barrel shape." [See **Sellers et al.**, col. 5 lines 14-47 col. 6 line 58 through col. 7 line 4] The same reasons for rejection, that apply to **claims 1, 9** also apply to **claim 10** and need not be reiterated.

17. With respect to **Claim 11, Sellers et al.**, teaches and shows that "said scanner comprises a basic field magnet forming said cavity." [See **Sellers et al.**, Figures 3, 4, component 10 col. col. 5 lines 14-47] The same reasons for rejection, that apply to **claim 1** also apply to **claim 11** and need not be reiterated.

18. With respect to **Claim 12, Sellers et al.**, shows that "said gradient coil system has a circumference", [See figures 3, 4] "and wherein said support arrangement comprises at least three supporting elements circumferentially distributed around said gradient coil system." [See Figures 3, 4, col.6 line 37 through col. 7 line 4, col. 4 lines 5-61]. The same reasons for rejection, that apply to **claim 1** also apply to **claim 12** and need not be reiterated.

19. With respect to **Claim 16, Sellers et al.**, teaches and shows that "said gradient coil system is wedged in said cavity." [See col. 2 lines 28-33; col. 4 lines 5-61; col. 6 lines 36 through col. 7 line 4; figures 3, 4, components 40, 42.] The same reasons for rejection, that apply to **claim 1** also apply to **claim 16** and need not be reiterated.

20. **Claims 1-8, 11, 12, and 15** are rejected under **35 U.S.C. 102(e)** as being anticipated by **Minas** US patent 6,456,074 B1 issued September 24th 2002, filed January 28th 2000.

21. With respect to **Claim 1, Minas** teaches and shows that "A magnetic resonance apparatus comprising: a magnetic resonance scanner having a cavity therein adapted to receive a subject" [See figures 3, 5; col. 1 lines 22-47], **Minas** shows "said cavity having a boundary surface;" [See figures 3, 5] "a gradient coil system disposed in said cavity" [See components 28, 30, 38, 40, 36, figure 3] "said gradient coil system having a middle region" [See middle gradient coupling ring components 30, 40, in figure 3] "and edge regions" [See edge components 30, 40, of figure 3] "respectively disposed on opposite sides of, and adjoining, said middle region" [See figure 3], "said middle region

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having a reduced mechanical stiffness compared to said edge regions; and a supporting arrangement to support said middle region against said boundary surface of said cavity” [See figure 3, abstract, col. 2 lines 7-40; col. 3 line 16 through col. 6 line 52.].

22. With respect to **Claim 2**, **Minas** teaches and shows that “said gradient coil system comprises a carrier,” because gradient coil assembly 28 is the “carrier / support former which comprises the gradient coil system containing each of the gradient coil components. [See figures 3, 5, col. 4 line 26 through col. 6 line 52] The same reasons for rejection, that apply to **claim 1** also apply to **claim 2** and need not be reiterated.

23. With respect to **Claim 3**, **Minas** teaches and shows that “said gradient coil system comprises a plurality of gradient coils” [See col. 6 lines 5-15; col. 4 lines 9-58; col. 3 lines 16-34; col. 2 lines 7-40], “each composed of multiple sub-coils” [See col. 2 lines 21-30; col. 4 lines 25-48, col. 6 lines 5-15; col. 6 lines 24-58; col. 5 lines 45-50] “and at least two units disposed on said carrier respectively comprising parts of said sub-coils.” [See Figures 3, 5, 7, 8; abstract, col. 6 lines 5-58; col. 4 lines 25-65; col. 2 lines 21-40.] The same reasons for rejection, that apply to **claims 1, 2** also apply to **claim 3** and need not be reiterated.

24. With respect to **Claim 4**, **Minas** teaches and shows that “at least one of those units is a structurally independent unit.” [See Figures 3, 5 col. 6 lines 15-52, especially col. 6 lines 48-50; col. 4 lines 42-48] The same reasons for rejection, that apply to **claims 1, 2, 3** also apply to **claim 4** and need not be reiterated.

25. With respect to **Claim 5**, **Minas** teaches and shows that “said two units, in said middle region, are attached to said carrier separated from each other.” [See abstract, Figures 3, 5; col. 4 lines 25-65; col. 5 lines 7-21; col. 5 line 58 through col. 6 line 52.] The same reasons for rejection, that apply to **claims 1, 2, 3** also apply to **claim 5** and need not be reiterated.

26. With respect to **Claim 6**, **Minas** teaches and shows that “said carrier has a hollow cylindrical shape.” [See abstract, figures 3, 5; col. 3 line 16 through col. 6 line 52; col. 1 line 56 through col. 2 line 40.] The same reasons for rejection, that apply to **claims 1, 2** also apply to **claim 6** and need not be reiterated.

27. With respect to **Claim 7**, **Minas** teaches and shows that "said units each have a hollow cylindrical shape." [See Figures 3, 5 col. 4 line 9 through col. 6 line 52; col. 2 lines 7-40.]] The same reasons for rejection, that apply to **claims 1, 2, 6** also apply to **claim 7** and need not be reiterated.

28. With respect to **Claim 8**, **Minas** teaches and shows that "said gradient coil system has a hollow-cylindrical shape." [See figures 3, 5 col. 3 line 16 through col. 6 line 52; col. 1 line 56 through col. 2 line 40; abstract] The same reasons for rejection, that apply to **claim 1** also apply to **claim 8** and need not be reiterated.

29. With respect to **Claim 11**, **Minas** teaches and shows that "said scanner comprises a basic field magnet forming said cavity." [See magnet component 16 of figure 3] The same reasons for rejection, that apply to **claim 1** also apply to **claim 11** and need not be reiterated.

30. With respect to **Claim 12**, **Minas** teaches and shows that "said gradient coil system has a circumference", [See figures 3, 5] "and wherein said support arrangement comprises at least three supporting elements" (i.e. components 30, 40 of figures 3, 5) "circumferentially distributed around said gradient coil system." [See figures 3, 5 col. 4 line 9 through col. 6 line 52; col. 3 lines 58-62] The same reasons for rejection, that apply to **claim 1** also apply to **claim 12** and need not be reiterated.

31. With respect to **Claim 15**, **Minas** teaches and shows that "said gradient coil system is attached to said boundary surface of said cavity by an adhesive." [See col. 4 lines 33-38 where attaching gradient coil systems by glass/epoxy (i.e. epoxy is an adhesive) material is taught to be conventional in previous gradient systems.]] The same reasons for rejection, that apply to **claim 1** also apply to **claim 15** and need not be reiterated.

Allowable Subject Matter

32. **Claims 13, 14**, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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33. With respect to **Claim 13**, the prior art of record does not suggest that "at least one of said" gradient coil "supporting elements comprises a threaded bolt with a pressure plate facing said boundary surface of said cavity."

34. With respect to **Claim 14**, the prior art of record does not suggest that the "gradient coil system comprises a carrier having a threaded bore therein in which said threaded bolt is received."

Prior Art of Record

35. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A) Schuster et al., US patent application publication 2004/0113619 published June 17th 2004, which is the publication of applicant's instant application which is known for purposes of a complete record. This reference is not available as prior art because it is applicant's own work,

B) Heid et al., US patent 6,531,870 B2 issued March 11th 2003, filed December 21st 2001.

C) Morich US patent 5,296,810 issued March 22nd 1994.

Conclusion

36. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tiffany Fetzner whose telephone number is: (571) 272-2241. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm., and on alternate Friday's from 7:00am to 3:30pm.

37. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached at (571) 272-2245. The **only official fax phone number** for the organization where this application or proceeding is assigned is **(703) 872-9306**.



TAF

October 13, 2004



Diego Gutierrez
Supervisory Patent Examiner
Technology Center 2800